

**AMENDMENTS TO CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-15. (cancelled)

16. (currently amended) A method for diagnosis, prognosis and/or follow up of Parkinson's disease, said method comprising the use of molecular markers, wherein said molecular markers are detecting one or more genes with altered expression pattern, or gene products thereof, said genes being selected from the group consisting of: ALDH1A1, ARPP-21, HSPA8, SKP1A, SLC18A2, SRPK2, TMEFF1, TRIM36, ADH5, PSMA3, PSMA2, PSMA5, PSMC4, HIP2, PACE4, COX6A1, PFKP, OXCT, GBE1, UQCRC2, LANCL1, TRIP15, PIK3CA, PLCL1, GNG5, GNAI1, VEGF, RHOB, NR4A2, SCL31A2, SCP2, PIGH, ARIH2, GMPR2, PP, IKBKAP, PRKACB, PTPRN2, BCAS2, IARS, PPP1R8, SEP15, TAF9, ZFP103, WRB, TMEM4, SMARCA3, FMR1, PDE6D, SGCE, AUH, SLC16A7, ATP6V1E1, UGTREL1, SEC22L1, CD9, CDH19, DUSP1, HSA6591, ACTR3, KIF2, TUBB2, ASPA, HELO1, C3orf4, CBR1, XPOT, LOC51142, NY-REN-45, SET0-2, EGLN1, EIF4EBP2, LGALS9, LOC56920, LRP6, MAN2B1, PARVA, PENK, SELPLG, SPHK1, SRRM2, ZSIG11, ITGB3BP, ITGAM, COL18A1, TM4SF9, LAMB2, HS3ST2, TSTA3, COL5A3, PALM, MYOM1, FLNB, HMBS, KRT2A, CSK, NUDC, HYPE, GAK, SIAT1, CSF1R, ICSBP1, CD22, ERCC1, DNAJB5, TRAF3, MMP9, EIF4G1, RPL36, SRPK1,

CSNK1G2, RPS6KA1, JIK, LNK, INPP5D, TCOF1, NAPG, SLC19A1, ITSN1, LOC51035, PMVK, C21orf2, EFEMP2, TBL1X, APRT, SPUF, GLTSCR2, ADIR, PSCD4, CBFA2T1, CUGBP1, ING4, STAT6, ZNF239, TAL1, TAF11, MXD4, RDHL, LOC51157, LRP6, MBD3, and C9orf7.

17. **(currently amended)** A-The method according to claim 16, wherein said ~~molecular markers are one or more genes~~ are selected from the group consisting of: ALDH1A1, ARPP-21, HSPA8, SKP1A, SLC18A2, SRPK2, TMEFF1, TRIM36, ADH5, PSMA3, PSMA2, PSMA5, PSMC4, EGLN1, EIF4EBP2, LGALS9, LOC56920, LRP6, MAN2B1, PARVA, PENK, SELPLG, SPHK1, SRRM2, and ZSIG11.

18. **(currently amended)** A-The method according to claim 16, which comprises:  
      detecting a decreased level of expression of one or more genes selected from the group consisting of: ALDH1A1, ARPP-21, HSPA8, SKP1A, SLC18A2, SRPK2, TMEFF1, TRIM36, ADH5, PSMA3, PSMA2, PSMA5, PSMC4, HIP2, PACE4, COX6A1, PFKP, OXCT, GBE1, UQCRC2, LANCL1, TRIP15, PIK3CA, PLCL1, GNG5, GNAI1, VEGF, RHOB, NR4A2, SCL31A2, SCP2, PIGH, ARIH2, GMPR2, PP, IKBKAP, PRKACB, PTPRN2, BCAS2, IARS, PPP1R8, SEP15, TAF9, ZFP103, WRB, TMEM4, SMARCA3, FMR1, PDE6D, SGCE, AUH, SLC16A7, ATP6V1E1, UGTREL1, SEC22L1, CD9, CDH19, DUSP1, HSA6591, ACTR3, KIF2, TUBB2, ASPA, HELO1, C3orf4, CBR1, XPOT, LOC51142, NY-REN-45, and SET0-2, and/or

detecting an increased level of expression of one or more genes selected from the group consisting of: EGLN1, EIF4EBP2, LGALS9, LOC56920, LRP6, MAN2B1, PARVA, PENK, SELPLG, SPHK1, SRRM2, ZSIG11, ITGB3BP, ITGAM, COL18A1, TM4SF9, LAMB2, HS3ST2, TSTA3, COL5A3, PALM, MYOM1, FLNB, HMBS, KRT2A, CSK, NUDC, HYPE, GAK, SIAT1, CSF1R, ICSBP1, CD22, ERCC1, DNAJB5, TRAF3, MMP9, EIF4G1, RPL36, SRPK1, CSNK1G2, RPS6KA1, JIK, LNK, INPP5D, TCOF1, NAPG, SLC19A1, ITS1N1, LOC51035, PMVK, C21orf2, EFEMP2, TBL1X, APRT, SPUF, GLTSCR2, ADIR, PSCD4, CBFA2T1, CUGBP1, ING4, STAT6, ZNF239, TAL1, TAF11, MXD4, RDHL, LOC51157, LRP6, MBD3, and C9orf7.

19. (currently amended) A The method according to claim ~~18~~29, which comprises detecting a decreased level of expression of one or more genes selected from the group consisting of: ALDH1A1, ARPP-21, HSPA8, SKP1A, SLC18A2, SRPK2, TMEFF1, TRIM36, ADH5, PSMA3, PSMA2, PSMA5, and PSMC4, and/or detecting an increased level of expression of one or more genes selected from the group consisting of: EGLN1, EIF4EBP2, LGALS9, LOC56920, LRP6, MAN2B1, PARVA, PENK, SELPLG, SPHK1, SRRM2, and ZSIG11.

20. (currently amended) A method for diagnosing occurrence of Parkinson's disease in an individual exhibiting Parkinsonian-like symptoms, said method comprising:

\_\_\_\_\_detecting in a sample obtained from said individual a decreased level of expression of one or more genes selected from the group consisting of: ALDH1A1, ARPP-21, HSPA8, SKP1A, SLC18A2, SRPK2, TMEFF1, TRIM36, ADH5, PSMA3, PSMA2, PSMA5, PSMC4, HIP2, PACE4, COX6A1, PFKP, OXCT, GBE1, UQCRC2, LANCL1, TRIP15, PIK3CA, PLCL1, GNG5, GNAI1, VEGF, RHOB, NR4A2, SCL31A2, SCP2, PIGH, ARIH2, GMPR2, PP, IKBKAP, PRKACB, PTPRN2, BCAS2, IARS, PPP1R8, SEP15, TAF9, ZFP103, WRB, TMEM4, SMARCA3, FMR1, PDE6D, SGCE, AUH, SLC16A7, ATP6V1E1, UGTREL1, SEC22L1, CD9, CDH19, DUSP1, HSA6591, ACTR3, KIF2, TUBB2, ASPA, HELO1, C3orf4, CBR1, XPOT, LOC51142, NY-REN-45, and SET0-2, and/or

\_\_\_\_\_detecting an increased level of expression of one or more genes selected from the group consisting of: EGLN1, EIF4EBP2, LGALS9, LOC56920, LRP6, MAN2B1, PARVA, PENK, SELPLG, SPHK1, SRRM2, ZSIG11, ITGB3BP, ITGAM, COL18A1, TM4SF9, LAMB2, HS3ST2, TSTA3, COL5A3, PALM, MYOM1, FLNB, HMBS, KRT2A, CSK, NUDC, HYPE, GAK, SIAT1, CSF1R, ICSBP1, CD22, ERCC1, DNAJB5, TRAF3, MMP9, EIF4G1, RPL36, SRPK1, CSNK1G2, RPS6KA1, JIK, LNK, INPP5D, TCOF1, NAPG, SLC19A1, ITS1N1, LOC51035, PMVK, C21orf2, EFEMP2, TBL1X, APRT, SPUF, GLTSCR2, ADIR, PSCD4, CBFA2T1, CUGBP1, ING4, STAT6, ZNF239, TAL1, TAF11, MXD4, RDHL, LOC51157, LRP6, MBD3, and C9orf7,

\_\_\_\_\_wherein said decreased and/or increased level of expression of said genes is diagnostic of Parkinson's disease.

21. (currently amended) A ~~The~~ method according to claim 20, said method comprising detecting a decreased level of expression of ~~one or more the~~ genes ~~selected from the group consisting of~~: ALDH1A1, ARPP-21, HSPA8, SKP1A, SLC18A2, SRPK2, TMEFF1, TRIM36, ADH5, PSMA3, PSMA2, PSMA5, and PSMC4, and/or detecting an increased level of expression of one or more the genes ~~selected from the group consisting of~~: EGLN1, EIF4EBP2, LGALS9, LOC56920, LRP6, MAN2B1, PARVA, PENK, SELPLG, SPHK1, SRRM2, and ZSIG11.

22. (currently amended) A ~~The~~ method according to claim 20, wherein said sample is blood, serum or biopsy of skin from the tested individual.

23. (currently amended) The method according to claim 20, which comprises detecting a ~~the~~ gene product expressed by said ~~gene and~~ one or more genes, wherein the gene product is a protein expressed by the gene or RNA transcribed from the gene, or both.

24. (previously presented) The method according to claim 23, wherein said detection comprises assaying for the presence of a protein expressed by the gene by contacting the sample with an antibody, or a fragment thereof, that binds to the protein.

**25. (previously presented)** The method according to claim 23, which comprises detection in said sample of decreased or increased levels of RNA transcripts.

**26. (previously presented)** The method according to claim 25, wherein detection of the RNA transcripts is carried out by a method selected from the group consisting of Northern blots, RNase protection assays (RPA), nucleic acid probe arrays, real-time quantitative reverse-transcription PCR (RT-PCR), dot blot assays and in-situ hybridization.

**27. (withdrawn - currently amended)** A method for screening for an agent useful for treating Parkinson's disease, which method comprises identifying an agent that upregulates the expression of one or more genes selected from the group consisting of ALDH1A1, ARPP-21, HSPA8, SKP1A, SLC18A2, SRPK2, TMEFF1, TRIM36, ADH5, PSMA3, PSMA2, PSMA5, PSMC4, HIP2, PACE4, COX6A1, PFKP, OXCT, GBE1, UQCRC2, LANCL1, TRIP15, PIK3CA, PLCL1, GNG5, GNAI1, VEGF, RHOB, NR4A2, SCL31A2, SCP2, PIGH, ARIH2, GMPR2, PP, IKBKAP, PRKACB, PTPRN2, BCAS2, IARS, PPP1R8, SEP15, TAF9, ZFP103, WRB, TMEM4, SMARCA3, FMR1, PDE6D, SGCE, AUH, SLC16A7, ATP6V1E1, UGTREL1, SEC22L1, CD9, CDH19, DUSP1, HSA6591, ACTR3, KIF2, TUBB2, ASPA, HELO1, C3orf4, CBR1, XPOT, LOC51142, NY-REN-45, and SET0-2, ~~or~~ and down-regulates the expression of one or more genes selected from the group consisting of: EGLN1, EIF4EBP2, LGALS9,

LOC56920, LRP6, MAN2B1, PARVA, PENK, SELPLG, SPHK1, SRRM2, ZSIG11, ITGB3BP, ITGAM, COL18A1, TM4SF9, LAMB2, HS3ST2, TSTA3, COL5A3, PALM, MYOM1, FLNB, HMBS, KRT2A, CSK, NUDC, HYPE, GAK, SIAT1, CSF1R, ICSBP1, CD22, ERCC1, DNAJB5, TRAF3, MMP9, EIF4G1, RPL36, SRPK1, CSNK1G2, RPS6KA1, JIK, LNK, INPP5D, TCOF1, NAPG, SLC19A1, ITSN1, LOC51035, PMVK, C21orf2, EFEMP2, TBL1X, APRT, SPUF, GLTSCR2, ADIR, PSCD4, CBFA2T1, CUGBP1, ING4, STAT6, ZNF239, TAL1, TAF11, MXD4, RDHL, LOC51157, LRP6, MBD3, and C9orf7.

**28. (withdrawn)** A method according to claim 27, which comprises identifying an agent that upregulates the expression of one or more genes selected from the group consisting of: ALDH1A1, ARPP-21, HSPA8, SKP1A, SLC18A2, SRPK2, TMEFF1, TRIM36, ADH5, PSMA3, PSMA2, PSMA5, PSMC4, or down-regulates the expression of one or more genes selected from the group consisting of: EGLN1, EIF4EBP2, LGALS9, LOC56920, LRP6, MAN2B1, PARVA, PENK, SELPLG, SPHK1, SRRM2, ZSIG11.

**29. (New)** The method according to claim 18, wherein said one or more genes consists of:

at least 5-8 genes in which the level of expression is decreased, and at least 5-8 genes in which the level of expression is increased.

30. (New) The method according to claim 18, which comprises:

detecting a decreased level of expression of the genes:  
ALDH1A1, ARPP-21, HSPA8, SKP1A, SLC18A2, SRPK2, TMEFF1,  
TRIM36, ADH5, PSMA3, PSMA2, PSMA5, PSMC4, and HIP2; and

detecting an increased level of expression of the genes:  
EGLN1, EIF4EBP2, LGALS9, LOC56920, LRP6, MAN2B1, PARVA, PENK,  
SELPLG, SPHK1, SRRM2, ZSIG11, and CSK.